Joint Data Link Information Combat Execution (JDICE)

Joint Test and Evaluation (JT&E)

Quick-Look Report for Mini-Test C

1. Summary

This is a Quick-Look report of the JDICE JT&E Mini-Test C Test event performed under the Charter of the Office of Secretary of Defense (OSD), Director of Operational Test and Evaluation (DOTE). Mini-Test C was the first of three JDICE JT&E Mini-Tests scheduled to be conducted. The purpose of the JDICE JT&E is to improve the Joint Force Commanders (JFC) battlespace situational awareness by developing, testing, evaluating and institutionalizing Joint and Service Tactics, Techniques, and Procedures (TTP) that provide critical mission information across multi-platform, fielded, tactical air and ground data links. Mini-Test C was conducted per OSD Charter memorandum dated April 11, 2003, and the JDICE detailed test plan for Mini-Test C dated August 28, 2003. All information in this report is based upon raw data collected during the Mini-Test C activity and has not been fully analyzed at this point. Therefore, this report is preliminary as the data requires full analysis to develop relevant findings and recommendations. The Mini-Test C interim test report will be completed within forty-five days after receipt of final validated data.

The objectives of JDICE's Mini-Test C were to:

- Show that existing critical mission information can be put on the Link 16 network with sufficient accuracy, completeness, timeliness, and tactical significance such that the information is actionable when it appears on tactical warfighter platform displays.
- Minimize accuracy errors in Mini-Test C Joint Tactics, Techniques, and Procedures (JTTP) Link 16 transcribed information at critical nodes in the process.
- Minimize data dropouts within Mini-Test C Link 16 messages passed between critical nodes in the process.
- Confirm that the Mini-Test C developed JTTPs result in Link 16 messages being received and updated in enough time for the Warfighter to execute combat actions.
- Determine how useful the Mini-Test C JTTPs are to the Warfighter in accomplishing mission requirements.

1.2 Test Participants

JDICE JT&E Specific Participants Included:

- F-16CJ, 422TES, Nellis AFB, NV
- F-15E, 422TES, Nellis AFB, NV
- F/A-18C/D, VX-9, NAS China Lake, CA
- F-15E, 336FS, Seymour-Johnson AFB, SC
- 98RANW (Ground Threats), Nellis AFB, NV
- CAOC-N, Nellis AFB, NV
- DET 4 AFC2TIG, USAF DMOC (ATACMS), Kirtland AFB, NM
- SPAWAR, San Diego, CA
- Aerospace Data Facility, Buckley ANGB, Aurora, CO.

1.3 Testing

Testing was conducted from October 27 – November 7, 2003 at the Nellis Test and Training Range (NTTR), Nellis AFB, Nevada.

1.4 Major Assets

Scheduled/Utilized:

- F/A-18: 56/31
- F-15E: 56/58
- F-16CJ: 56/47
- ATACMS: 14/3
- Ground Threats: 72/68

1.5 Test Observations

The following are observations of note. It is emphasized that the observations were made from raw data and preliminary analysis. It is possible there could be changes in findings and recommendations.

- **Observation 1:** 136 Sorties flown in support of JDICE Mini-Test C test objectives. 153 JDICE JTTP Link 16 tracks transmitted (105 new tracks, 48 updated tracks). 440 Total tracks received by all aircraft (multiple aircraft received same track information).
- **Observation 2:** JDICE Mini-Test C JTTPs were rapidly understood and correctly applied by the JTTP crews. Thorough understanding promoted clear organization of tasks, timely completion of duties, an increased level of completeness of information, and allowed for the intelligent and timely refinements for JTTP process improvement.
- **Observation 3:** JDICE Mini-Test C JTTPs provided accurate, complete, and timely information to Link 16 capable nodes/assets participating in the test.
  - Accuracy: 96% of tracks met established accuracy criteria of 40NM (reasons for the other 4% were not JDICE related).
  - Completeness: 100% of tracks sent met established completeness criteria of threat latitude, longitude, elevation, and identification. Individual aircraft operational flight programs (OFP) processed Link 16 messages differently and some symbology was not accurate. JDICE will continue to identify specific mission design series (MDS) OFP limitations to mitigate or resolve Link 16 display anomalies.
  - Timeliness: 94% of tracks sent met timeliness criteria of 15 minutes (reasons for the other 6% were not JDICE related). Mean time to send tracks to the Warfighter from receipt of information from national collection facilities was 50 seconds.
- **Observation 4:** Warfighter situational awareness was successfully enhanced without causing task saturation. Aircrews reported an exceptionally increased capability in deconfliction and threat avoidance. Aircrews also reported significant improvements in targeting accuracy. The minimum track quality (TQ) value required to find the target with a targeting pod in narrow field of view (default) was TQ 10. The mean TQ value of all nationally collected and transmitted threat information provided to the Warfighter during Mini-Test C was a TQ 10 (high TQ 15, low TQ 6).
- **Observation 5:** Participation of National assets in Joint Test comes with risk. JDICE coordinated with six separate and distinct organizations representing a portion of the national support data flow schematic that are critical to national support approval. These entities included, but were not limited to: Local Collection Management Office, Overhead Collection Management Cell, Aerospace Data Facility, Source Collection Management Cell, Integrated Broadcast Service Support Office, and the Operational Support Activity. JDICE requested, coordinated, and was

approved for 20 hours of national support. JDICE received approximately 9 hours of national support. Variables limiting the available national support included national tasking and prioritization, technical failures, and lack of available assets.

1.6 Additional Test Director Comments

JDICE is a new OSD-Chartered JT&E developing JTTPs to increase situational awareness at the tactical level, emphasizing information required for deconfliction, fratricide prevention, and targeting. At the operational level, situational awareness of the battlespace increased exponentially during Operation Iraqi Freedom. JDICE is taking the next step by developing JTTPs to ensure important relevant information is digitally pushed to trigger pullers at the tactical level. Link 16 will be used as the digital medium to transmit data comprised of correlated threats, Blue Force tracking systems and priority targets. JDICE successfully completed its first Mini-Test that pushed nationally-derived threat data to tactical aircraft over Link 16 at the NTTR Complex. Near real-time accurate threat updates were transmitted in less than one minute with accuracies as tight as 19 feet. This timely, relevant information provided unprecedented situational awareness allowing aircrews to make tactical decisions that increased survivability. JDICE will conduct two additional Mini-Tests and a Capstone field test. The Mini-Tests will push Special Forces then Army/Marine Corps Blue Force tracking and targeting information over the Link to tactical platforms for deconfliction and execution. The field test will combine all Mini-Test participants to validate the JTTPs and to determine the saturation effects on the overall Link architecture. JDICE is committed to getting information to the Warfighter as soon as possible and test events are aligned with scheduled JTTP conferences. JDICE will use these venues to rapidly disseminate proven JTTPs to Warfighters to immediately influence operations at the tactical level.

1.7 Analysis

Analysis of the validated truth data from Mini-Test C will provide the basis for final findings and recommendations and will be provided to addressees when complete. Point of contact for further information is Lt. Col. Billy Gilstrap, Deputy Director, JDICE JT&E at DSN 682-8646, e-mail Billy.Gilstrap@nellis.af.mil, or Col. Jeffrey Hodgdon, Director, JDICE JT&E at DSN 682-3832, e-mail Jeffrey.Hodgdon@nellis.af.mil.